

## REMARKS

In the Office Action dated June 4, 2007 the Examiner, rejected claims 1-19 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention; rejected claims 1-19 under 35 U.S.C. 102(b) as being anticipated by *Pribytkov*; rejected claims 1-19 under 35 U.S.C. 102(b) as being anticipated by *Robertson*; rejected claims 1-19 under 35 U.S.C. 102(b) as being anticipated by *Al-Yazida*; rejected claims 1-19 under 35 U.S.C. 102(b) as being anticipated by *Page Jr.*; and rejected claims 1-19 under 35 U.S.C. 102(b) as being anticipated by *Hunter*.

### Section 112 Rejections

The claims have been amended to overcome the rejections under 35 U.S.C. §112, second paragraph. With respect to claim 1, the term "plurality of outlets" has been deleted. The claim has further been amended to structurally relate the "inlet" to the "circular tubular". The "tangential outlets" have been structurally related to the "circular tubular". The term "multiphase fluid into selected lighter and heavier fluids" has been substituted for "multiphase flow" separated into "selected separated phases". With respect to claim 7, the term "another" has been substituted for "a second additional bore". With respect to claim 9, the term "spiral conduit" has been substituted for "conduit(s)". The term "desired phases" has been deleted. The "spiral conduit" can be connected to a plurality of outlets, each relating to a selected fluid. See Figure 2, outlets 12, 13. The amendments to claim 1 overcome the vagueness and indefiniteness of the terms "a plurality of outlets" and "lighter and heavier fluids". With respect to claim 10, "a plurality of parallel coils having a common diameter" has been substituted for "a parallel cited spiral coil having the same coil diameter as the spiral coil above". With respect to claim 11, the term "spiral conduit" has been substituted for "each conduit". Further, "a plurality of tapered coils having consecutive reduced outer diameters" has been substituted for "defines an envelope, at least part of the envelope being tapered such that the diameters of consecutive loops of the conduit are reduced." With respect to claim 13, antecedent basis is provided for the terms "angle" and "slope". The terms "pipework", "coil" and "annular bores" have been deleted. With respect to claim 14, "spiral conduit" has been substituted for "spiral". See the discussion with respect to claim 9 as to the spiral conduit having more than one outlet. With respect to claim 15, the term "spiral conduit" has been substituted for "each conduit". Further, claim 15 has been amended to provide that the drain and/or vent conduits communicate the spiral conduit with another tubular bore. With respect to claim 16, the term "required phase" has been deleted. With respect to claim 17, claim 17 has been amended

to dispose the slurry outlet on the spiral conduit for the removal of a solid slurry. With respect to claim 18, the term "circular tubular" has been substituted for "annular tubular bores". With respect to claim 19, claim 19 has been amended to delete the "inlet" and to dispose a tangential inlet on the another tubular.

The above amendments overcome the rejection of claims 1-19 under § 112, second paragraph.

#### **Section 102 Rejections**

Claims 1-19 are rejected under § 102(b) as being anticipated by *Pribytkov* or *Robertson* or *Al-Yazida* or *Page, Jr.*, or *Hunter*. Claim 1 is an independent claim with claims 2-19 being dependent thereon. Claim 1 has been amended to distinguish the cited prior art.

None of the cited prior art teaches a circular tubular. A circle is a plane bounded by a single curved line with every point being equally distant from the point of the center of the circle. Thus, a circular tubular is not a spiral tubular. The circular tubular of claim 1 allows the multiphase fluid to flow into the tubular bore of the circular tubular through the inlet and continue a circular path until the selected lighter and heavier fluids exit through tangential outlets. *Pribytkov* teaches a spiral pipe 9; *Robertson* teaches a spiral tube 10, *Al-Yazida* teaches a spiral conduit 14, *Page, Jr.* teaches spiral conduits 15, 16; and *Hunter* teaches a spiral duct 94, 122.

Further, none of the cited prior art teach a tangential outlet on the upwardly facing inner section of the circular tubular to separate selected lighter fluids and a tangential outlet on the downwardly facing outer section of the circular tubular to separate selected heavier fluids. *Pribytkov* teaches a spiral pipe 9 having a two or three-way offshoot 53 at the exit of the spiral pipe 9. Exits 54, 55 are not tangential outlets with one tangential outlet on the upwardly facing inner section to separate lighter fluids and a tangential outlet on the downwardly facing outer section to separate selected heavier fluids. *Robertson* teaches an outlet 12a for heavier fluids but does not teach a tangential outlet for lighter fluids. *Al-Yazida* teaches skimmer ports 37 located on the outside of spiral conduit 14 for the removal of heavier fluids but no tangential outlet for lighter fluids. In an alternative embodiment, skimmer ports 70 are provided on the inside of spiral coil 14 to remove lighter fluids but no tangential outlet for heavier fluids. In particular, *Al-Yazida* does not teach having both a tangential port for lighter fluids and a tangential port for heavier fluids at the same time. *Page, Jr.* teaches a plurality of openings or slots 31 cut into the last turn in conduit 16 to allow the separated heavier fluids to be injected into the inside of housing 19. *Page, Jr.* does not teach a tangential outlet for lighter fluids. *Page, Jr.* in one embodiment shown in Figure 7 teaches an outlet 121Y for heavier fluids and an outlet 121X for lighter

fluids but outlet 121X for lighter fluids is not a tangential outlet. *Hunter* teaches a regulating vane, 151-154, which may be disposed on Figure 4C to separate the fluids into four surrounding channels 201-204 and an inner fifth channel 120. *Hunter* does not teach withdrawal channels 203, 204 as a tangential outlet on the upwardly facing inner section to separate selected lighter fluids and a tangential outlet on the downwardly facing outer section to separate selected heavier fluids.

None of the cited prior teach a multiphase fluid flowing in a circular path with no outlet other than the tangential outlets. *Pribytkov* teaches a collecting pipe 27 for recompression in compressor 21 for re-injection into spiral pipe 9. *Robertson* teaches a final outlet 13. *Al-Yazida* teaches flow into a settling tank 16 or to an outer connection 26. *Page, Jr.* teaches a final outlet 12. *Hunter* teaches outlets 121 and 120 for flow into decanters 29, 32.

For all of the above reasons, the cited prior art is distinguishable from claims 1-19.

#### **VOLUNTARY AMENDMENTS**

Applicants have made certain voluntary amendments to the claims. Claim 1 has been amended to rearrange the previous limitations of the claim for better clarity. The phrase "the flow through the tubular bore causing" has been substituted for "flow is cause to flow and". Also the phrase "at least one for each selected phase" has been deleted as repetitive. Claims 2 and 3 have been amended to substitute "tubular bore" for "main annular tubular bore." Further with respect to claim 3, "to establish" has been deleted as being repetitive. With respect to claim 6, "another tubular" has been substituted for "a first additional tubular bore" to avoid any vagueness in that limitation. With respect to claim 8, "another tubular" has been substituted for "first additional bore" to avoid any vagueness in that limitation. Claims 9 and 13 have been amended to substitute "circular tubular" for "annular tubular bores". With respect to claim 14, the word "of" has been deleted as being superfluous. With respect to claim 18, this claim has been amended to add that the circular tubular is substantially horizontal. This limitation had not previously been included in the claim and was a voluntary amendment not related to patentability. All of the above amendments were voluntary and were not required for purposes of patentability. Thus, Applicant is entitled to the application of the Doctrine of Equivalents with respect to the amended limitations.

Applicants amended the "Cross-Reference to Related Applications" paragraph to bring to the attention of the Examiner certain related co-pending applications. Further, Applicants are submitting concurrently herewith an Information Disclosure Statement (IDS), at least in part, to bring to the

Examiner's attention office actions and references cited in these related co-pending applications. The office actions and cited references in the related co-pending applications may or may not be material.

## CONCLUSIONS

During the course of these remarks, Applicant has at times referred to particular limitations of the claims that are not shown in the applied prior art. This shorthand approach to discussing the claims should not be construed to mean that the other claimed limitations are not part of the claimed invention. They are as required by law. Consequently, when interpreting the claims, each of the claims should be construed as a whole, and patentability determined in light of this required claim construction. Unless Applicant has specifically stated that an amendment was made to distinguish the prior art, it was the intent of the amendment to further clarify and better define the claimed invention and the amendment was not for the purpose of patentability. Further, although Applicant may have amended certain claims, Applicant has not abandoned its pursuit of obtaining the allowance of these claims as originally filed and reserves, without prejudice, the right to pursue these claims in a continuing application.

If a petition for extension of time is necessary in order for this paper to be deemed timely filed, please consider this a petition therefore. The Commissioner is authorized to charge any additional fees incurred in this application to Deposit Account No. 03-2769 of Conley Rose, P.C., Houston, Texas.

If the Examiner has any questions or comments regarding this communication, he is invited to contact the undersigned to expedite the resolution of this application.

Respectfully submitted,

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